Rice University
Department of Psychology

PSYC 640/480: Advanced Topics in HCI: Non-Traditional Interfaces
Spring 2013

Tuesday-Thursday 10:50 – 12:05, SH562

Instructor

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Office Hours Tuesday 1:30-2:30, or by appointment

Required Texts:

Kortum, P. (Ed.) (2008). *HCI Beyond the GUI: Design for Haptic, Speech, Olfactory and other Non-Traditional Interfaces*. Burlington, MA: Morgan Kaufmann.

You will also need to read the case studies on the companion website at www.beyondthegui.com

Class	Date	Topic	Readings
1	1/8	Introductions, Class logistics and the 8 Basic Principles of Design	Chapter 1
2	1/10	History of User interfaces	
3	1/15	Haptic Interfaces	Chapter 2
4	1/17	Haptic Interfaces Lab Tour	
5	1/22	Gesture Interfaces	Chapter 3
6	1/24	Gesture Interfaces Lab	
7	1/29	Locomotion Interfaces	Chapter 4
8	1/31	Project Kickoff presentation	
9	2/5	Sonified User Interfaces *Presentation 1*	Chapter 5
10	2/7	Sonification Lab: K-Bat Sonar *Presentation 2*	
11	2/12	Speech Interfaces *Presentations 3 & 4*	Chapter 6
12	2/14	Speech Interface Lab *Presentations 5 & 6*	
13	2/19	IVR interfaces *Presentations 7 & 8*	Chapter 7
14	2/21	**Exam 1** Covers through Speech interfaces	
15	2/26	***No class – Spring Break***	
16	2/28	***No class – Spring Break***	

17	3/5	Olfactory interfaces *Presentations 9 & 10*	Chapter 8
18	3/7	Olfactory Interfaces Lab *Presentations 11 & 12*	
19	3/12	Taste Interfaces *Presentations 13 & 14*	Chapter 9
29	3/14	Impoverished Interfaces *Presentation 15*	Chapter 10
21	3/19	Impoverished interfaces Lab *Presentation 16*	
22	3/21	Multi-modal interfaces MEMM *Presentation 17*	Chapter 11
23	3/26	Multi-modal Interfaces MIMM *Presentation 18*	Chapter 12
24	3/28	***No class – Mid-term recess***	
25	4/2	MIMM-MEMM Lab *Presentation 19*	
26	4/4	Future interfaces *Presentation 20*	
27	4/9	Future Interfaces Lab *Presentation 21*	
28	4/11	**Exam 2** Covers IVR to end	
29	4/16	Project Presentations	
30	4/18	Project Presentations Papers dues	

Examinations:

There will be 2 examinations, but no Final Exam. The 2 in class exams will be closed book/closed note and may cover any of the material assigned up to that point. This includes material from HCI Beyond the GUI, my lecture notes, Lab tours, Lab exercises and presentations that other students have given.

Presentations:

Each student will be required to give a presentation during the course of the semester on a specific interface that interests them. These will not be surveys of the general interface technology, but will be an interesting example of a specific implementation. You will be required to give a 15 minute talk about the interface, talking about its technical implementation, the human factors that would/should have gone into its design, and any design deficiencies you believe still exist. Examples may be chosen from commercially available devices or research devices that are still in the laboratory, but may make it out to the commercial realm. The presentation should provide copious pictures or auditory examples of the interface. No report is required for this presentation, but you must supply me with a copy of the presentation material after the talk. You may choose from any covered interfaces. We will go through the selection process on the second day of class, as only a limited number of students may present each topic. Once you have an interface area, your specific interface must be approved by me.

Project:

Each student will be part of a 2-3 person project team that will build a functional nontraditional interface. We will be building NTI's for geophysical exploration, working with Shell Oil to identify the parameters of the designs. We will go through a selection process after we kickoff the project on 1/31. Teams should meet with me shortly after that to discuss their ideas and gain approval. Strictly MEMM and MIMM systems involving traditional interface modes will not be approved. The interface must be operational (WOZ is ok) and perform the core functions described by Shell. The team should document the process of defining and constructing the interface for inclusion in the end report. The team will be required to present the interface to the class at the end of the semester in a 15 minute presentation, demonstrating the interface and allowing others to use the interface as well. The team report is due the last day of the semester and should include the process that was used to arrive at the interface as well as mock-ups, sketches, prototypes, drawings used in the process.

Documented human factors requirements should be included in the final implementation. Originality of the interface is one component of the grade.

Participation:

A good deal of this class will entail open discussions of human factors issues of these interfaces, as well as discussions of student presentations and lab exercises. Active, thoughtful participation is expected from every student. There are no make-ups on participation assignments.

Evaluation:

Exams 1 and 2	25% each (total 50%)
Project:	25%
Presentation	10%
Participation	15%

- Gesture, sonification, speech, olfactory, impoverished & MIMM-MEMM labs are 2% each
- Haptic, project kickoff and future labs are 1% each

Disabilities:

If you have a documented disability that requires accommodation, please let me know so we can confidentially discuss your needs. You will also need to register with the Disability Support Services Office in Allen Center.

Honor System Policy:

As with all endeavors at Rice, you are expected to adhere to the Honor Code and follow the guidelines given in the Blue Book. Exams are given under the honor system. Students are encouraged to work collaboratively on the projects, but each student is expected to contribute an equal share to the final project. Students are encouraged to bring any concerns involving academic integrity to the attention of the instructor.